CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

FINAL ORDER No. 91-138

SITE CLEANUP REQUIREMENTS FOR:

VAN WATERS & ROGERS INC.
2256 JUNCTION AVENUE
SAN JOSE
SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board) finds that:

1. Site Location and Description Van Waters & Rogers Inc. (VW&R, also described as the discharger), located in San Jose, is a commercial chemical storage, handling, and distribution facility. The 13.7 acre VW&R facility, at 2256 Junction Avenue, is located in a zoned commercial/industrial area, about three miles north of downtown San Jose and about nine miles southeast of San Francisco Bay.

   Major topographic relief features include the Diablo Range to the east and the Santa Cruz mountains to the west. Nearby surface drainage features include Coyote Creek, which flows within 1,200 feet to the east of the site and the Guadalupe River which flows within about 6,000 feet to the west. Both of these drainage features flow north to San Francisco Bay (Figure 1).

2. Site History Prior to 1975, the land that the site now occupies was used for agricultural purposes. In 1975, VW&R purchased the property and the facility was constructed; operations began in 1976. Principal operations and activities at the site include bulk chemical transfers between tank trucks, railroad tank cars, and underground storage tanks; chemical storage in drums and underground tanks; chemical blending, packaging, and distribution; and rinsing of containers.

   The facility contains 37 underground storage tanks with capacities of 6,000 and 10,000 gallons (Figure 2). Fourteen tanks have been taken out of service and are now kept empty. VW&R presently uses, or has used in the past, 36 of the tanks to store the following industrial chemicals: 1,1,1-trichloroethane (TCA), methylene chloride, tetrachloroethylene (PCE), selected aliphatic hydrocarbons, aromatic hydrocarbons (including xylene and toluene), ketones, glycols, and alcohols. One tank is used to store diesel fuel.

   Subsurface investigations initiated at the site in December 1982 revealed the presence of various industrial chemicals in the soil and groundwater at the facility. These chemicals included TCA, trichloroethylene (TCE), PCE, 1,1-dichloroethane (DCA), 1,1- and 1,2-dichloroethylenes (DCE), methylene chloride, vinyl chloride, toluene, xylene, ketones, and alcohols. The highest concentrations are located north of the open dock, in the vicinity of the underground tank farm and in the area where most chemical handling occurs or has occurred.

3. National Priority List - "Superfund" On October 2, 1984, the Environmental Protection Agency (EPA) proposed adding the VW&R San Jose facility to the National Priority List (NPL), subject to regulation under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). However, due to changes in the Resource Conservation and Recovery Act (RCRA) by the Hazardous and Solid Waste Amendments (HWSA) in 1984, EPA determined that the site could best be handled under RCRA, meeting the substantive requirements of CERCLA. Subsequently, on June 21, 1988 EPA proposed that the VW&R facility be deleted from the NPL.

   Pursuant to the South Bay Multi-Site Cooperative Agreement and the South Bay Groundwater Contamination Enforcement Agreement entered into by the Board, EPA and the Department of Health Services (DHS), the Board has been acting as lead regulatory agency on this site.

4. Administrative Orders and Permits The following orders and permits have been adopted for the Van Waters & Rogers site:

   - Interim status as a RCRA Storage Facility with the EPA ID No. CAD010925576
   - Bay Area Air Quality Management District (BAAQMD) operating permit No. 31053, issued February 13, 1986 (for air stripper)
   - Site Cleanup Requirements Order No. 85-87, adopted July 17, 1985
   - Waste Discharge Requirements Order No. 87-6, (NPDES No. CA0028991), adopted February 18, 1987
   - Site Cleanup Requirements Order No. 89-018 (rescinding Order No. 85-87), adopted January 18, 1989

5. Potentially Responsible Party Results of the Potentially Responsible Party (PRP) search pursuant to the Health and Safety Code Section 25356.1 (c) and (d) are that Van Waters & Rogers Inc. is the only identified responsible party associated with the release of pollutants to the subsurface at this location. VW&R has accepted responsibility for the site cleanup and is therefore also a discharger under the California Water Code. However, nothing in these findings or Order shall limit VW&R's right and ability to identify other PRPs for the purposes of cost recovery under any applicable laws.

6. Community Involvement An aggressive Community Relations program has been ongoing for all Santa Clara Valley Superfund sites, including VW&R. The Board published a notice in the July 10 and July 17 1991 issues of the San Jose Mercury News announcing the proposed final Remedial Action Plan and opportunity for public comment at the Board Hearing of July 17, 1991 in Oakland, and announcing the opportunity for public comment at an evening community meeting to be held at City Hall in San Jose on July 18, 1991. A presentation of the proposed final cleanup plan was made at the July 17, 1991 Board Hearing and the July 18, 1991 evening community meeting. The 30 day comment period was from July 17, 1991 to August 16, 1991.

   Fact Sheets were mailed to interested residents, local government officials, and media representatives. Fact Sheet 1, mailed in December, 1989, summarized the pollution problem, the results of investigations to date, and the interim remedial actions. Fact

Sheet 2, mailed in July, 1991, described the cleanup alternatives evaluated, explained the proposed final Remedial Action Plan (RAP), announced opportunities for public comment at the Board Hearing of July 17, 1991 in Oakland and the Public Meeting of July 18, 1991 in San Jose and described the availability of further information at the Information Repository at the City of San Jose Public Library. The Responsiveness Summary summarizes responses to significant comments received during the public comment period. Fact Sheet 3, expected to be mailed in September 1991, will explain the final adopted cleanup plan contained in this Order.

7. Summary of Site Characteristics

History of Site Investigation A summary of actions initiated to assess and mitigate chemical occurrence in the soil and the groundwater at the VW&R facility is presented in the Remedial Investigation/Feasibility Study (RI/FS), dated February 1991, section 2.4 titled Project History and Previous Investigations. A chronological summary is provided that begins in December 1982 with a subsurface investigation that was initiated pursuant to the RWQCB survey of facilities in San Francisco Bay Region known to handle hazardous materials and waste. The most recent activities have been associated with the Site Cleanup Order No. 89-018; this involves extraction and treatment of groundwater from the A aquifer and B-1 zone.

8. Source Investigation The potential sources investigated included an accidental release of PCE from an aboveground 12,000-gallon blend tank in 1977 and underground storage tanks and associated piping. Soil and groundwater investigations indicated the distribution of PCE and other volatile organic compounds (VOCs) located in the vicinity of the reported spill, consistent with the 1977 reported release of PCE. Areas located immediately adjacent to and underneath the underground storage tanks have not been fully characterized. Plans for removal of the underground storage tanks are being developed, and are partially contingent upon the discharger receiving approval from various local agencies on the construction of a new storage system. When the underground tanks are removed, additional investigation will be required to define the extent of any contamination beneath the tank farm.

9. Groundwater Investigation VW&R has completed 26 groundwater monitoring and extraction wells in the A aquifer at the site and vicinity. The plume in the A aquifer was mapped using the indicator chemicals PCE, TCA, and 1,2-DCE. Indicator chemicals were selected as those chemicals most frequently detected in the groundwater at the highest concentrations (for ease in depicting the chenmical plume) and were not selected on a health risk basis. The lateral extent of the plume has been determined to be within VW&R's property boundaries except at the western edge, which extends approximately 100 to 150 feet beneath the adjacent property. The western boundary of the plume in the A aquifer requires additional definition, however, it is expected that extraction of the groundwater at Well 28 in this area will help to refine what is known about the boundary.

In the B aquifer, there are 10 monitoring and extraction wells in the B-1 zone and three in the B-2 zone. In the B-2 zone, VOCs have been detected sporadically at irregular concentrations (not greater than 10 ppb for any VOC). The boundary of the plume in the

B-1 zone has been determined to be relatively well defined except in the area of the rail spur located near the open dock and north/northwest of the underground tanks (Figure 2). The implementation of the groundwater extraction system in the B-1 zone is expected to define the plume boundary at the north/northwestern edge.

An interim groundwater remediation program was instituted in December 1986. The program currently includes groundwater extraction in six A aquifer wells and one B-1 zone well, treatment by air stripping, and discharge to the storm drain system via a NPDES permit. The interim groundwater treatment system has treated over 31 million gallons of groundwater since its initiation in 1986, and has reduced VOC concentration in A aquifer monitoring wells. There is currently enough information known about the plume to select the type of final remediation. Additional monitoring well(s) may be needed for long-term plume definition and remediation progress, depending upon the effectiveness of the proposed system.

10. Regional Hydrogeology The Santa Clara Valley, which extends southeast from San Francisco Bay is bounded by the Diablo Range on the northeast, and by the Santa Cruz and Gavilan Ranges on the southwest.

The Santa Clara Valley is a large structural depression in the Central Coastal Range of California. The Valley is filled with alluvial and fluvial deposits from the adjacent mountain ranges. These deposits are up to 1,500 feet in thickness. At the base of the adjacent mountains, gently sloping alluvial fans of the basin tributaries laterally merge to form an alluvial apron extending into the interior of the basin.

The Santa Clara Valley groundwater basin is divided into two broad areas: 1) the forebay, and 2) the confined area, where the VW&R facility is located. The forebay occurs along the elevated edges of the basin where the basin receives its principal recharge. The confined area is located in the flatter interior portion of the basin and is stratified or divided in individual beds separated by significant aquitards. The confined area is divided into the upper and lower aquifer zones. The division is formed by an extensive regional aquitard that occurs at depths ranging from about 100 feet near the confined area's southern boundary to about 150 to 250 feet in the center of the confined area and beneath San Francisco Bay. Thickness of this regional aquitard varies from about 20 feet to over 100 feet.

Several aquifer systems occur in the upper aquifer zone separated by aquitards which may be leaky or very tight. Groundwater pollution at this site is confined to the upper aquifer zone. The lower aquifer zone occurs beneath the practically impermeable regional aquitard. The regional aquitard occurs at approximately 100 to 150 feet below grade in the area of the VW&R site. Numerous individual aquifers occur below the aquitard in the lower aquifer zone and all groundwater in the lower aquifer zone is confined.

The nearest municipal water supply wells are located 2,000 feet east-southeast and hydraulically upgradient of the site, and are generally perforated in the lower aquifer zone. The closest active downgradient well is 2,500 feet to the north of the site.

11. Site Hydrogeology The site and vicinity is underlain by a semi-perched, shallow water-bearing zone of relatively low permeability silty clay and clayey sand, referred to as the A aquifer. A aquifer water level data have consistently indicated flow to the northwest. The average depth at which groundwater is encountered is about 10 to 14 feet below grade; the bottom of the aquifer extends to approximately 45 feet below grade. Observations during A aquifer tests have indicated that the hydraulic connection between the A and B aquifers downgradient of the open dock area (Figure 2) is limited.

The A aquifer is underlain by the more permeable B aquifer; water level measurements on wells completed in the B-1 zone indicate groundwater flows to the northwest. The average thickness of the B-1 zone is estimated to be about 28 feet. Based on stratigraphy encountered in some wells and borings in the B-2 zone, it appears that the B-2 zone is separated from the overlying B-1 zone by a relatively thin stratum of stiff, gray-brown, sandy or clayey silt. Pump tests in wells along the northern site boundary have indicated saturated thickness of the B-1 and B-2 zones is approximately 45 feet.

12. Summary of Site Risk Two Baseline Public Health Evaluations (BPHE) were prepared for the VW&R site; one by the Board's contractor and one by VW&R. The BPHEs examined the collective geographic, physical, chemical, and biological factors at the site to describe the extent of the potential or actual exposure and associated risk to human receptors (The RI evaluated non-human receptors in the Ecological Assessment). The BPHE process was used to evaluate and interpret data obtained from the Remedial Investigation and to develop Feasibility Study objectives. A baseline risk assessment constitutes an evaluation of the "no-action" or "no-further-action" alternative for remediation. Exceedance of a baseline risk of 1 in 10,000 to 1 in 1,000,000 indicates that remediation may be required.

a. Chemicals of Concern Thirty-nine different organic compounds have been detected in soil and groundwater samples since site characterization activities were initiated in 1982. Twenty of these organic compounds have been designated as "primary" compounds of potential interest at the site, based on frequency of detection and/or their maximum concentration. The remaining 19 "secondary" compounds were detected occasionally in only a few wells. Primary and secondary compounds are listed in Table 1 to this Order.

Of the 20 primary compounds, chemicals of concern are determined by calculating the upperbound excess carcinogenic risk and the non-carcinogenic health effects. For the twenty compounds identified as the primary compounds of interest at the site, the percentage contribution of each chemical to the overall potential cancer risk was calculated and those chemicals contributing most significantly were selected as chemicals of concern for the Feasibility Study.

The final list of chemicals of concern for target cleanup levels in soil and groundwater have been identified as:

acetone
methylene chloride
tetrachloroethylene (PCE)
trichloroethylene (TCE)
1,1-dichloroethylene
cis-1,2-dichloroethylene
vinyl chloride

An eighth chemical, 1,1,1-trichloroethane (TCA), has been included in the final list for target cleanup because of its designation as an indicator chemical in groundwater.

b. Toxicity Classification of Chemicals of Concern Five of the chemicals of concern are classified as carcinogens, and three others are classified as non-carcinogens. The acceptable risk level for carcinogens ranges from 10^{-4} to 10^{-6} (1 in 10,000 to 1 in 1,000,000) excess cancers in the exposed population. For non-carcinogens, an acceptable Hazard Index (HI) for a site is less than or equal to 1.0.

The EPA categories for carcinogenic classification applied to the chemicals of concern are: A category carcinogen (human carcinogen with sufficient evidence in human epidemiological studies), B2 category carcinogens (probable human carcinogens, with inadequate human evidence and sufficient evidence from animal experiments), and C category carcinogen (possible human carcinogen, limited evidence of carcinogenicity in animals with inadequate human data).

Of the chemicals of concern, one is an A category carcinogen (vinyl chloride), and three are B2 category carcinogens (methylene chloride, PCE, and TCE). A fifth, 1,1-dichloroethylene, is a C category carcinogen. Acetone, cis-1,2-dichloroethylene, and TCA are classified as non-carcinogens.

c. Risk Characterization A BPHE, dated November 1989, was prepared by the Board's contractor. The BPHE concluded that exposure to humans under current land use conditions is unlikely because the site is paved (presenting no exposure to contaminated soils either by direct contact or volatilization into the air) and the shallow groundwater is not currently used for drinking. The deeper aquifer used for drinking water has not been impacted by site activities. In addition, VW&R's contractor prepared a Revised PHE (RPHE) in December 1990 using a hybrid current/future use exposure scenario. In VW&R's hybrid scenario, groundwater beneath the site is used for domestic purposes over a 30-year period, assuming current groundwater quality conditions remain unchanged. Other differences between the two PHEs were the sets of data that were used to develop the evaluations, the way the wells in the A aquifer and B-1 zone were grouped, and how data below the method detection limit was used.

Under a future risk scenario, the VW&R property may be developed as commercial or residential. If this were to occur, potential exposure may result to workers and residents if the site were not remediated. The primary pathway, were exposure to occur, would be via the groundwater (A aquifer and B-1 zone); the upper aquifer has been designated as having a potential beneficial use as a drinking water source. To ensure that human health is protected, the BPHE incorporated conservative assumptions. Average case and maximum case scenarios were presented in the BPHE.

Using the hypothetical "no-action" future risk scenario, the Board's contractor determined the overall average case carcinogenic risk of VOCs to be 2.4×10^{-3}, and the plausible maximum case to be 7×10^{-3}. (A carcinogenic risk of 1×10^{-3} is equal to one excess occurrence of cancer in a population of 1,000.) The average case carcinogenic risk determined by VW&R's contractor was found to be 4×10^{-4} for current/future use, and the plausible maximum case to be 6×10^{-1}.

Using the same exposure scenario, the Board's contractor determined the non-carcinogenic Hazard Index (HI) for VOCs from use of shallow groundwater to be 10 for either average or maximum case scenarios. EPA's acceptable HI for cleanup standards for a site is less than or equal to 1.0. VW&R's contractor determined the HI to be 2 for the average case and 420 for the maximum case scenario.

Thus, using either the Board's BPHE or VW&R's RPHE, the carcinogenic risk and HI associated with a "no-action" remedy exceed EPA's acceptable carcinogenic and non-carcinogenic risk ranges. Therefore, a potential risk exists for future use of the ground water and cleanup is necessary.

d. Ecological Assessment At the VW&R site, there is little native vegetation or wildlife in the immediate vicinity. Surface water flows into a storm drain system and ultimately to the Guadalupe River. Extracted groundwater is treated and discharged to the storm drain as part of VW&R's NPDES permit. Established limits for discharge of treated groundwater are intended to protect aquatic life. No adverse impacts are expected on aquatic populations in Guadalupe River.

For terrestrial animals or birds, potential impact from exposure to surface water is not expected to be significant due to the nature of the chemicals and those of the species. Bioaccumulation in the food chain is not likely to be significant.

13. Required Remedial Actions to Meet Risk Management Objectives

Soil

No Applicable or Relevant and Appropriate Requirements (ARARs) exist for soil. The RWQCB requires soil cleanup levels of 1 ppm total VOCs the discharger can demonstrate that a proposed alternative level will be protective of human health and the environment. For this site, soil cleanup levels to protect ground water quality will be separated into initial and final standards due to accessibility issues in and around the underground tank farm area and beneath existing structures. Hot spots, defined as accessible areas in

which the concentrations of any of the indicator chemicals PCE, TCA, or TCE exceed 10 mg/kg, will be remediated to minimize the potential contribution to ground water, as an interim measure. The final remedy will require additional characterization of the soil surrounding the tanks and associated piping, as well as beneath existing structures should the facility cease operations. At that time, a re-evaluation of remedial alternatives will be required. The initial and final standards are described in Specification 6.

Groundwater

Cleanup standards for the chemicals of concern in the A and B aquifers were developed using available drinking water standards and a risk-based approach using exposure assumptions for which no drinking water standards or criteria were available. Treatment of the groundwater to state and/or federal maximum contaminant levels (MCLs), action levels (ALs), or target cleanup levels for the chemicals of concern will result in an acceptable excess risk of 4×10^{-5} and a hazard index of less than 1.0.

Remediation of B aquifer groundwater will focus on the source area around the open dock. Source area remediation is expected to achieve the target remediation goals throughout the B aquifer.

The remedial action objective for groundwater is to ensure that the plume is monitored, and that ingestion, absorption through the skin, and inhalation of contaminated groundwater is prevented.

Air

The BPHE did not identify chemicals of concern in the air, with the exception of those chemicals emitted to the air during ground water treatment; these emissions are regulated under the BAAQMD permit. Therefore, no additional remedial action objectives have been generated for air emissions.

14. Remedial Investigation / Feasibility Study (RI/FS) The discharger completed a draft RI/FS in November 1989. That document was reviewed and comments have been incorporated in a Final RI/FS dated February 1991. The technical information contained in the RI/FS is consistent with the Health and Safety Code requirements for a final remedial action plan and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) requirements for a RI/FS. Regional Board staff have determined that the technical information contained in the Feasibility Study is acceptable for developing a final cleanup plan for the site. The FS contains an evaluation of ARARs for interim remedial actions, an evaluation of final remedial actions, and proposed remedial standards.

15. Remedial Alternatives The Feasibility Study identified a range of general response actions as remedial technologies. These general response actions are: no action, containment, in-situ treatment, and removal. Based on remedial action objectives and target cleanup levels, potentially appropriate remedial technologies within each general response

category for soil and groundwater were identified. These technologies were then evaluated based on the Nine Evaluation Criteria developed by EPA, and out of that a final remedial alternative was proposed.

IDENTIFICATION OF ALTERNATIVES CONSIDERED

Final evaluation of process options in terms of overall site conditions resulted in the following remedial technologies:

Alternative 1 - No action for either vadose zone soils or groundwater.

Alternative 2 - Capping of soils containing more than 1 mg/kg total VOCs; A aquifer remediation by extraction and treatment by air stripping; and B aquifer remediation of groundwater by extraction and treatment by Granular Activated Carbon (GAC) or air stripping.

Alternative 3 - Soil remediation by In-Situ Vapor Extraction (ISVE) in areas containing more than 10 mg/kg of one or more of the indicator chemicals PCE, TCE, and TCA; A aquifer remediation by extraction and treatment by air stripping; and B aquifer remediation of groundwater by extraction and treatment by GAC or air stripping.

Alternative 4 - Capping of soils containing more than 1 mg/kg total VOCs; soil remediation by ISVE in areas containing more than 10 mg/kg of one or more of the indicator chemicals PCE, TCE, and TCA; A aquifer remediation by extraction and treatment by air stripping; and B aquifer remediation of groundwater by extraction and treatment by GAC or air stripping.

Alternative 5 - A aquifer remediation by extraction and treatment by air stripping; remediation of B aquifer by extraction and treatment by GAC or air stripping; and one of the following: excavation of soils above 1 mg/kg VOCs and on-site treatment by aeration or thermal desorption, or remediation of soils above 1 mg/kg by ISVE.

16. Summary of Evaluation Criteria This section summarizes the nine evaluation criteria developed by EPA and used to compare the alternatives in the RI/FS. The alternatives were evaluated in detail with respect to the nine criteria in the RI/FS report. Each alternative was also evaluated with respect to the six state law criteria set forth in Section 25356.1 of the California Health and Safety Code. A comparative analysis was completed in the RI/FS.

Overall protection of human health and the environment This criterion addresses whether a remedy provides adequate protection of human health and the environment.

Compliance with applicable or relevant and appropriate requirements (ARARs) This criterion addresses whether a remedy will meet all of the ARARs or other Federal and State environmental laws. ARARs for the site are defined in detail in the RI/FS.

Long-term effectiveness and permanence This criterion refers to expected residual risk and residual chemical concentrations after cleanup goals have been met and the ability of a remedy to maintain reliable protection of human health and the environment over time.

Reduction of toxicity, mobility or volume This criterion refers to the anticipated performance of the treatment technologies a remedy may employ.

Short-term effectiveness This criterion addresses the period of time needed to achieve cleanup and any adverse impacts on human health and the environment that may be posed during the construction and implementation period, until cleanup goals are achieved.

Implementability This criterion refers to the technical and administrative feasibility of a remedy.

Cost This criterion includes estimated capital and operation and maintenance, usually presented in a 30 year present worth format.

Support Agency Acceptance This criterion addresses EPA's acceptance of the selected remedy and any other EPA comments.

Community Acceptance This criterion summarizes the public's general response to the alternatives.

17. **Interim Remedial Actions**

Groundwater

Currently groundwater extraction and treatment is proceeding in seven onsite wells; six in the A aquifer and one in the B aquifer. This water is being treated by an air stripper and discharged to the storm drain via VW&R's NPDES permit. This extraction and treatment system appears effective at containing and cleaning up the plume.

18. **Final Remedial Actions** Based primarily on information contained in the discharger's Feasibility Study, this Order provides for a final cleanup plan which is a modified version of Alternative 4, as follows:

Soil

Remedial actions for soils have been designed with corresponding initial and final cleanup standards and includes a final remedy which provides coordination with current and future operations at the site, and removes the long-term threat to water quality, as follows:

Initial Actions:

- temporary cap placement until removal of underground tanks occurs. Evaluation of the effectiveness of the temporary cap using the SESOIL model indicated that the existing pavement should provide a minimum permeability of at least 1×10^{-7} cm/sec in order to minimize chemical migration in the soil.

- in-situ soil vapor extraction of accessible hot spot areas to levels not to exceed 10 mg/kg per indicator chemical.

- institutional controls consisting of site security, worker protection and training, and current land use zoning for commercial/industrial.

Final Actions:

- Continued ISVE until levels of 1 mg/kg total VOCs is achieved, unless the discharger can demonstrate that a proposed alternative level will be protective of human health and the environment.

- At the time of the removal of the underground tanks, and when areas beneath existing structures become accessible, additional soil and groundwater characterization and reevaluation of alternatives to meet the 1 ppm total VOC cleanup standard.

Groundwater

- Continued extraction and treatment of A and B aquifers until drinking water quality is achieved.

  Achieving drinking water quality is an ARAR for this site. If drinking water quality cannot be achieved, the discharger must demonstrate to the satisfaction of the Board and EPA that the conditions for waiving an ARAR are met (i.e., that meeting the ARAR is technically impractical from an engineering perspective) and that the alternative proposed will be protective of human health and the environment. The Order will then need to be modified by the Board and approved by the EPA's Regional Administrator to allow a less stringent on-site groundwater cleanup level.

- Long term monitoring will be required after cleanup levels are achieved. The duration and complexity on the monitoring will be determined at that time.

- A deed restriction will be filed by VW&R prohibiting use of on-site groundwater for drinking water until final cleanup standards are achieved.

19. Summary of Evaluation Criteria for the Alternatives

BASIS FOR REJECTION

Alternative 1: No Action for Soil/Groundwater

The BPHE determined future risk is unacceptable if the groundwater were used. Concentrations of the chemicals of concern have been decreasing since 1986 because of applied remedial activities. The no action alternative would leave the source in place and the degradation of the contaminants of concern unmonitored.

Alternative 2: Soil Cap and Groundwater Extraction/Treatment

This alternative would have limited effect in reduction of toxicity or volume of chemicals in soil.

Alternative 3: Soil Treatment and Groundwater Extraction/Treatment

This alternative would not mitigate effects of constituent mobility (percolation of infiltrated surface water) through soil into the groundwater.

Alternative 5: Soil Excavation/Treatment and Groundwater Extraction/Treatment

This alternative may have adverse short term effects by releasing VOCs during soil excavation and may not be cost effective.

BASIS FOR ACCEPTANCE

Modified Alternative 4: Soil Cap combined with Treatment and Groundwater Extraction/Treatment

Overall Protection of Human Health and the Environment

Constituents in groundwater are contained within a defined area and contaminated groundwater is properly treated and released, under permit. Extraction, treatment, and disposal provides for the future protection of human health and the environment.

Compliance with ARARs

The cleanup goal for aquifer cleanup is the DHS drinking water action level or State or Federal MCL, whichever is more stringent. The goal of this remedial action is to restore groundwater to its beneficial uses.

Long Term Effectiveness

No significant risk to human health or the environment would result from continued operation of existing groundwater extraction, treatment, and discharge facilities, as long as the impacted groundwater is not used as a drinking water source. The estimated time to reach MCL goals is 13 years; for soils with ISVE is approximately 3 years.

Reduction of Toxicity, Mobility, or Volume Through Treatment

Continued operation of groundwater extraction, treatment, and discharge facilities at the site and ISVE in vadose zone soils combined with a cap will decrease the volume of the chemicals of concern in the groundwater and the toxicity of the groundwater.

Short Term Effectiveness

Short term operation of the groundwater extraction wells will contain the contamination in a defined area and result in decreased concentrations of the chemicals of concern. Vapor extraction in soils will enhance removal of contaminants. Evaluation of the effectiveness of extraction, treatment, and discharge will occur at the end of each year in accordance with the agency requirements.

Implementability

The groundwater extraction, treatment, and discharge alternative has already been implemented at the VW&R facility. An in-situ vapor extraction system can be implemented relatively easily.

Cost

Costs associated with groundwater extraction facilities have already been incurred by VW&R in implementing current remedial actions at the site. Present value costs for the selected alternative are $4,997,000 for 13 years, which includes operation and maintenance. Present value costs for the monitoring associated with the Self-Monitoring Program proposed by VW&R are $1,024,000.

Support Agency Acceptance

Groundwater extraction, treatment, and discharge will likely be acceptable to all involved agencies.

Community Acceptance

Community response to groundwater extraction and treatment, and soil vapor extraction were considered in choosing the proposed alternative. No known opposition exists.

This Order modifies Alternative 4 to require additional soil remediation in areas of the site as they become accessible.

20. Cleanup Standards The groundwater cleanup standards for the site are Environmental Protection Agency MCLs (proposed or adopted), California Department of Health Services MCLs (proposed or adopted), DHS Recommended Drinking Water Action Levels, or target levels based on risk assessment. Applicable MCL Goals (i.e., greater than zero) are met by the cleanup standards required by this Order.

Groundwater extraction will continue until drinking water quality is achieved, if feasible. If these standards are determined to be infeasible, groundwater extraction shall continue as long as significant quantities of chemicals are being removed through groundwater extraction. Achieving drinking water quality is an ARAR for this site. If drinking water quality cannot be achieved, VW&R must demonstrate to the satisfaction of the Regional Board and EPA that the conditions for waiving an ARAR are met (e.g., that meeting the ARAR is technically impractical from an engineering perspective) and that the alternative proposed will be protective of human health and the environment. The Order will then need to be modified by the Regional Board and approved by EPA to allow a less stringent groundwater cleanup level.

21. Evaluation of Final Plan. In accordance with the Health and Safety Code Section 25356.1, Section 121 of CERCLA, the final RAP submitted in the form of a "Proposed Plan," as modified by this Order, and as approved by the adoption of this Order, satisfies the requirements of the California Water Code Section 13304 and is protective of human health and the environment; attains ARARs; utilizes permanent solutions and alternative treatment technologies and resource recovery technologies to the maximum extent possible for short term effectiveness; is implementable; is cost effective; is acceptable based on State regulations, policies, and guidance; reduces toxicity, mobility, and volume of pollutants; and addresses public concerns.

22. State Board Resolution 68-16. On October 28, 1968, the State Board adopted Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality Waters in California". This policy calls for maintaining the existing high quality of State waters unless it is demonstrated that any change would be consistent with the maximum public benefit and not unreasonably affect beneficial uses. This is based on a Legislative finding, contained in Section 13000, California Water Code, which states in part that it is State policy that "waters of the State shall be regulated to attain the highest water quality which is reasonable." The original discharge of wastes to the groundwater at this site was in violation of this policy. For purposes of establishing cleanup objectives, the shallow groundwater at the site is designated a potential source of drinking water, and protective levels shall be those levels which have been established as protective for drinking water. At this time it appears that cleanup of groundwater to below the MCLs may be technically impractical due to the difficulties in restoring aquifers to concentrations below 5 ppb. For this reason, the MCL is acceptable to meet the intent of Resolution 68-16.

23. Future Changes to Cleanup Standards If new information indicates cleanup standards cannot be attained or can be surpassed, the Board and EPA will decide if further final cleanup actions, beyond those completed, shall be implemented at this Site. If changes in health criteria, administrative requirements, site conditions, or remediation efficiency

occur, the discharger will submit an evaluation of the effects of these changes on cleanup standards as defined in Specification B.4.

The Regional Board recognizes that the discharger has already performed extensive investigative and remedial work and that the discharger is being ordered hereby to perform additional remedial tasks. It is in the public interest to have the discharger undertake such remedial actions promptly and without prolonged litigation or the expenditure of public funds. The Regional Board recognizes that an important element in encouraging the discharger to invest substantial resources in undertaking such remedial actions is to provide the discharger with reasonable assurances that the remedial actions called for in this Order will be the final remedial actions required to be undertaken by the discharger. On the other hand, the Regional Board also recognizes its responsibility to protect water quality, public health, and the environment and that future developments could indicate that some additional remedial actions may be necessary.

The Regional Board has considered and balanced these important considerations, and has determined that the remedial actions ordered herein represent the Regional Board's best, current judgement of the remedial actions to be required of the discharger. The Regional Board will not require the discharger to undertake additional remedial actions with respect to the matters previously described herein unless: (1) conditions on the site, previously unknown to the Regional Board, are discovered after adoption of this Order, or (2) new information is received by the Regional Board, in whole or in part after the date of this Order, and these previously unknown conditions or this new information indicates that the remedial actions required in this Order may not be protective of public health and the environment. The Regional Board will also consider technical practicality, cost effectiveness, State Board Resolution No. 68-16 and other factors evaluated by the Regional Board in issuing this Order in determining whether such additional remedial actions are appropriate and necessary.

24. Data Validation Development of the Board's final Remedial Action Plan was based on the Board's evaluation of five years of water and soil quality data. Random samples have been collected and analyzed by the Board to confirm the validity of data generated by the dischargers. Data has been validated using EPA validation guidance. The Board finds that there is sufficient acceptable data to make cleanup decisions.

25. Lead Agency Pursuant to the South Bay Multi-Site Cooperative Agreement and the South Bay Ground Water Contamination Enforcement Agreement, entered into on May 2, 1985 (as subsequently amended) by the Regional Board, EPA and DHS, the Regional Board has been acting as the lead agency. EPA is expected to agree with the selected remedy and issue a Record of Decision following adoption by the Regional Board of the remedial action plan. The Regional Board will continue to regulate the dischargers' remediation and administer enforcement actions in accordance with CERCLA as amended by the Superfund Amendments and Reauthorization Act (SARA), the California Water Code, Health and Safety Code, and regulations adopted thereunder.

26. Administrative Record The Administrative Record has been prepared in accordance with EPA guidance, has been made available for public and PRP review, and provides the backup documentation for the recommendations of staff and decisions by the Board.

27. Van Waters & Rogers Inc. is the responsible party under the federal Superfund (CERCLA/SARA).

28. Van Waters & Rogers Inc. (hereinafter referred to as a discharger) is a discharger because of the releases of chemicals that have resulted from its chemical handling facilities and is the current owner of the property where these releases have occurred.

29. The selected remedial action plan for the VW&R Site was chosen in accordance with the Health and Safety Code Section 25356.1, CERCLA, as amended by SARA, the NCP, and pursuant to the Multi-Site Cooperative Agreement. This decision is based on the administrative record for the site.

30. The final remediation action plan is conceptual and provides a basis for remedial design.

31. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on December 17, 1986. The Basin Plan contains water quality objectives and beneficial uses for South San Francisco Bay and contiguous surface and ground waters.

32. The existing and potential beneficial uses of the groundwater underlying and adjacent to the facility include:

    a. Industrial process water supply
    b. Industrial service water supply
    c. Municipal and Domestic water supply
    d. Agricultural water supply

33. The discharger has caused or permitted, and threatens to cause or permit, waste to be discharged or deposited where it is or probably will be discharged to waters of the State and creates or threatens to create a condition of pollution or nuisance.

34. Onsite and offsite containment and cleanup measures need to be implemented and/or continued to alleviate the threat to the environment posed by the continued migration of pollutants and to provide a substantive technical basis for designing and evaluating the effectiveness of final cleanup alternatives.

35. This action is an order to enforce the laws and regulations administered by the Board. This action is categorically exempt from the provisions of the CEQA pursuant to Section 15321 of the Resources Agency Guidelines.

36. The Board has notified the discharger and interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for

the discharge and has provided them with the opportunity for a public hearing and an opportunity to submit their written views and recommendations.

37. Resolution 88-160, adopted by the Regional Board, strongly encourages the maximum feasible reuse of extracted groundwater from groundwater pollution remediations either by the discharger or other public or private water users. Consideration and implementation of Resolution 88-160 by the discharger is required by Provision C.2.a.

38. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, and Section 25356.1 of the California Health and Safety Code, that the discharger shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect the beneficial uses of the waters of the State is prohibited.

2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.

3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of pollutants are prohibited.

B. SPECIFICATIONS

1. The storage, handling, treatment or disposal of soil or groundwater containing pollutants shall not create a nuisance as defined in Section 13050(m) of the California Water Code.

2. The discharger shall conduct monitoring activities as determined by the Executive Officer and, should monitoring results show evidence of further plume migration beyond that already identified, additional characterization of the pollutant plume may be required.

3. All VW&R wells shall be used to determine if cleanup standards have been met; the wells used are determined by the Self-Monitoring Program established under this Order.

4. Final cleanup standards for all onsite and off-site wells shall not be greater than the levels as provided in Finding 20. The numerical final cleanup standards, therefore, shall not exceed the concentrations in any well as set forth in Table 2.

5. All groundwater extraction systems shall be maintained and kept operational until such time as groundwater extraction is curtailed and/or completed in accordance with the provisions of this Order.

6. Soil cleanup standards are 1 ppm for all VOCs. An initial standard of 10 ppm for each VOC shall apply until Provision C.2.g is complied with, or as other areas beneath existing structures become accessible.

7. Pursuant to Water Code Section 13304(c) the discharger is hereby notified that the Board is entitled to and may seek reimbursement for all reasonable staff oversight costs incurred relating to cleanup of wastes at the VW&R site, abating the effects thereof, or taking other remedial action.

C. PROVISIONS

1. The discharger shall submit to the Board acceptable monitoring program reports containing results of work performed according to a program prescribed by the Executive Officer.

2. The discharger shall comply with the Prohibitions and Specifications above immediately except as modified by the time schedule and tasks listed below.

a. COMPLETION DATE: NOVEMBER 30, 1991

TASK 1: PRELIMINARY DESIGN FOR EXPANDED GROUNDWATER TREATMENT SYSTEM: Submit a technical report acceptable to the Executive Officer which contains the preliminary design for the expanded groundwater treatment and extraction system for the B-1 zone. This document shall include, but need not be limited to, a map of the well configuration, an estimate of the capture zone that can be established by the wells, the rate of pumping that will be required, and how the performance of the system will be evaluated. This task should also include completed permit applications to the appropriate agencies.

b. COMPLETION DATE: 60 days after Executive Officer approval of report required in Task 1

TASK 2: FINAL DESIGN FOR EXPANDED GROUNDWATER TREATMENT SYSTEM: Submit a technical report acceptable to the Executive Officer which contains final design specifications and required modifications for the expanded groundwater treatment and extraction system for the B-1 zone. This document shall include information on the time required for equipment acquisition and estimated time for system construction.

c. COMPLETION DATE: 180 days after Executive Officer approval of report required in Task 2

TASK 3: IMPLEMENTATION OF EXPANDED GROUNDWATER TREATMENT SYSTEM: Submit a report acceptable to the Executive Officer which describes the test period for the groundwater extraction and treatment system and the status of full implementation of the system.

d. COMPLETION DATE: MARCH 1, 1992

TASK 4: GROUNDWATER REUSE AND RECLAMATION: Submit a technical report acceptable to the Executive Officer containing the groundwater reuse and reclamation plan for the treated groundwater. The report shall include documentation of efforts to reuse the water, efforts to secure users for the water, and reasons why potential users would not accept the water and discuss the technical feasibility and cost-effectiveness of other water reuse options.

e. COMPLETION DATE: NOVEMBER 30, 1991

TASK 5: IN-SITU VAPOR EXTRACTION SYSTEM: Submit a technical report acceptable to the Executive Officer which contains the preliminary design for the vapor extraction system for the vadose zone. This document shall include, but need not be limited to, determination of system parameters such as well depths, well spacings, and extraction rates, a map of the well configuration, the estimated zone of influence, the rate of pumping that will be required, necessary auxiliary equipment, and how the performance of the system will be evaluated.

f. COMPLETION DATE: 60 days after Executive Officer approval of report required in Task 5

TASK 6: FINAL DESIGN FOR IN-SITU VAPOR EXTRACTION SYSTEM: Submit a technical report acceptable to the Executive Officer which contains final design specifications and required modifications for the soil vapor extraction system. This document shall include information on the time required for equipment acquisition and estimated time for system construction.

g. COMPLETION DATE: 180 days after Executive Officer approval of report required in Task 6

TASK 7: IMPLEMENTATION OF IN-SITU VAPOR EXTRACTION SYSTEM: Submit a report acceptable to the Executive Officer which describes the test period for the soil vapor extraction system and status of full implementation of the system.

h. COMPLETION DATE: JANUARY 31, 1993

TASK 8: EVALUATION OF REMEDIAL MEASURES: Submit a technical report acceptable to the Executive Officer which contains results of the remedial measures and evaluates the effectiveness of the hydraulic containment system, ISVE, and other interim remedial measures. Such an evaluation shall include, but need not be limited to, an estimation of the flow capture zones of the extraction wells, establishment of the cones of depression by field measurements, and presentation of chemical monitoring data for soil and groundwater. The report shall also evaluate the effects of operation of existing extraction wells on groundwater levels, an estimate of the amount of chemicals removed via the extraction systems.

i. ACCESS TO UNDERGROUND TANK FARM

1) COMPLETION DATE: MARCH 31, 1993

TASK 9: STATUS REPORT ON PLANS FOR UNDERGROUND STORAGE TANK REMOVAL: Submit a technical report acceptable to the Executive Officer which contains a conceptual plan for obtaining access to the area beneath the underground tank farm at the facility. This report shall include, but need not be limited to, a brief description of the alternative storage system and a detailed projected time schedule for the various phases of planning, design, permit application, equipment procurement, construction, start-up, and inventory transfer for the new storage system, and decommissioning of the underground storage tanks.

2) COMPLETION DATE: SEPTEMBER 30, 1994

TASK 10: PROGRESS REPORT ON UNDERGROUND STORAGE TANK REMOVAL: Submit a technical report acceptable to the Executive Officer which contains the progress of activities described in TASK 9, including the work completed to date and the status of the various phases. The report shall also include, if warranted, a revised projected time schedule and supporting documentation justifying the revision.

j. COMPLETION DATE: 90 days after completion of work described in Task 9, but no later than SEPTEMBER 30, 1996

TASK 11: FINAL REPORT ON UNDERGROUND STORAGE TANK REMOVAL: Submit a technical report acceptable to the Executive Officer on the implementation of work described in TASKS 9 and 10, describing the entire process of the underground storage tank removal, and a characterization of the surrounding soil and groundwater. The report shall also include an evaluation of the

condition of soil and groundwater in terms of the selected remedial alternative described in Finding 19, propose the additional work necessary to comply with Finding 18, and provide specific details to achieve final cleanup standards.

k. COMPLETION DATE: SEPTEMBER 30, 1996

TASK 12: FIVE-YEAR STATUS REPORT AND EFFECTIVENESS EVALUATION: Submit a technical report acceptable to the Executive Officer containing the results of any additional investigation; an evaluation of the effectiveness of installed final cleanup measures and cleanup costs; additional recommended measures to achieve final cleanup objectives and standards, if necessary; a comparison of previous expected costs with the costs incurred and projected costs necessary to achieve cleanup objectives and standards; and the tasks and time schedule necessary to implement any additional final cleanup measures. This report shall also describe the reuse of extracted groundwater and evaluate and document the cleanup of contaminated soil and groundwater. If safe drinking water levels have not been achieved onsite and are not expected to be achieved through continued groundwater extraction and/or soil remediation, this report shall also contain an evaluation addressing whether it is technically practicable to achieve drinking-water quality, and if so, a proposal for procedures to do so.

l. COMPLETION DATE: 90 days after request made by the Executive Officer

TASK 13: EVALUATION OF NEW HEALTH CRITERIA: Submit a technical report acceptable to the Executive Officer which contains an evaluation of how the final plan and cleanup standards would be affected, if the concentrations as listed in Specification B.4. change as a result of promulgation of drinking water standards, maximum contaminant levels or action levels or other health based criteria.

m. COMPLETION DATE: 90 days after request made by the Executive Officer

TASK 14: EVALUATION OF NEW TECHNICAL INFORMATION: Submit a technical report acceptable to the Executive Officer which contains an evaluation of new technical and economic information which indicates that cleanup standards or cleanup technologies in some areas may be considered for revision. Such technical reports shall not be required unless the Executive Officer or the Board determines that such new information indicates a reasonable possibility that the Order may need to be changed under the criteria described in Finding 19.

n. INSTITUTIONAL CONSTRAINTS

1) COMPLETION DATE: DECEMBER 31, 1991

TASK 15: PROPOSED CONSTRAINTS: Submit a technical report acceptable to the Executive Officer documenting procedures to be implemented by the discharger, including a deed restriction prohibiting the use of the upper aquifer groundwater as a source of drinking water. Constraints shall remain in effect until groundwater cleanup standards have been achieved and pollutant levels have stabilized in onsite aquifers.

2) COMPLETION DATE: 60 days after Board staff approval of Task 15.

TASK 16: CONSTRAINTS IMPLEMENTED: Submit a technical report acceptable to the Executive Officer documenting that the proposed and approved constraints have been implemented.

o. CURTAILING GROUNDWATER EXTRACTION

1) COMPLETION DATE: 90 days prior to proposed curtailment groundwater extraction well or treatment system

TASK 17: ONSITE WELL PUMPING CURTAILMENT CRITERIA AND PROPOSAL: Submit a technical report acceptable to the Executive Officer containing a proposal for curtailing pumping from any groundwater and the criteria used to justify such curtailment. This report shall include data to show that groundwater cleanup standards for all VOCs have been achieved and pollutant levels have stabilized or are stabilizing, and that the potential for pollutant levels rising above cleanup standards is minimal.

If the discharger claims that it is not feasible to achieve cleanup standards, the report shall evaluate the alternate standards that can be achieved, whether conditions for waiving an ARAR are met, and that the alternative cleanup standards proposed will be protective of human health and the environment.

2) COMPLETION DATE: 60 days after Board approves curtailment.

TASK 18: IMPLEMENTATION OF CURTAILMENT: Submit a technical report acceptable to the Executive Officer documenting completion of the necessary tasks identified in the technical report submitted for Task 17.

3. The submittal of technical reports evaluating interim and final remedial measures will include a projection of the cost, effectiveness, benefits, and impact on public health,

welfare, and environment of each alternative measure. The remedial investigation and feasibility study shall be consistent with the guidance provided by Subpart F of the NCP (40 CFR Part 300); Section 25356.1 (c) of the California Health and Safety Code; CERCLA guidance documents; and the State Water Resources Control Board's Resolution No. 68-16, "Statement of Policy with Respect to Maintaining High Quality of Waters in California."

4. If the discharger is delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, the discharger shall promptly notify the Executive Officer, and the Board may consider revision to this Order for such delays that are beyond the control of the discharger.

5. Technical status reports on compliance with the Prohibitions, Specifications, and Provisions of this Order shall be submitted quarterly to the Board commencing on January 31, 1992, and covering the previous three months. On a quarterly basis thereafter, or as required by the Executive Officer, these reports shall consist of a report that: (1) summarizes work completed since submittal of the previous report and work projected to be completed by the time of the next report, (2) identifies any obstacles which may threaten compliance with the schedule of this Order and what actions are being taken to overcome these obstacles, and (3) includes, in the event of non-compliance with any Provision or Specification of this Order, written notification which clarifies the reasons for noncompliance and which proposes specific measures and a schedule to achieve compliance. This written notification shall identify work not completed that was projected for completion, and shall identify the impact of noncompliance on achieving compliance with the remaining requirements of this Order.

   These reports shall also identify any problems with or changes in the groundwater extraction system. Additionally, the quarterly reports shall include, but need not be limited to, updated water table and piezometric surface maps and plume maps for all affected water bearing zones, and appropriately scaled and detailed base maps showing the location of all monitoring wells and extraction wells, and identifying adjacent facilities and structures.

6. On an annual basis beginning with the report due January 31, 1992, or as required by the Executive Officer, the status report shall include, but need not be limited to, an evaluation of the progress of cleanup measures. A summary of monitoring and sampling data shall also be included in the annual report which can be part of the fourth quarter report.

7. The discharger shall submit technical reports acceptable to the Executive Officer containing revised Quality Assurance Project Plans, Site Safety Plans, and Site Sampling Plans, if requested by the Executive Officer or if deemed necessary. Each revised report shall be submitted within 30 days from the date of staff comments on the draft report.

8. All hydrogeological plans, specification, reports, and documents shall be signed by or stamped with the seal of a registered geologist, engineering geologist, or professional engineer.

9. All samples shall be analyzed by laboratories certified to perform analysis on Hazardous Materials or laboratories using approved EPA methods or an equivalent method acceptable to the Executive Officer. All laboratories shall follow EPA guidance "Documentation Requirements for Data Validation of Non-CLP Laboratory Data for Organic and Inorganic Analyses" dated May 1988 for preparation of data validation packages when required by the Executive Officer.

10. The discharger shall maintain in good working order, and operate, as efficiently as possible, any facility or control system installed to achieve compliance with the requirements of this Order.

11. Copies of all reports pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order, shall be provided to the following agencies:

    a. Santa Clara Valley Water District
    b. Santa Clara County Health Department
    c. City of San Jose
    d. State Department of Health Services/Toxic Substances Control Program
    e. U.S. Environmental Protection Agency, Region IX (H-6-3)

    The Executive Officer may additionally require copies of correspondence, reports and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order to a local repository for public use. Additional copies of correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order shall be provided for public use when requested by the Executive Officer.

12. The discharger shall permit the Board or its authorized representative, in accordance with Section 13267(c) of the California Water Code:

    a. Entry upon premises in which any pollution sources exist, or may potentially exist, or in which any required records are kept, which are relevant to this Order.

    b. Access to copy any records required to be kept under the terms and conditions of this Order.

    c. Inspection of any monitoring equipment or methodology implemented in response to this Order.

    d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the discharger.

13. The discharger shall file a report on any changes in site occupancy and ownership associated with the facility described in this Order.

14. If any hazardous substance, as defined pursuant to Section 25140 of the Health and Safety Code, is discharged in or on any waters of the state, or discharged and deposited where it is, or probably will be discharged on any waters of the state, the discharger shall report such discharge to this Regional Board, at (415) 464-1255 on weekdays during office hours from 8 a.m. to 5 p.m., and to the Office of Emergency Service at (800) 852-7550 during non-business hours. A written report shall be filed with the Regional Board within five (5) working days and shall contain information relative to: the nature of waste or pollutant quantity involved, duration of incident, cause of spill, Spill Prevention, Control, and Countermeasure (SPCC) Plan in effect, if any estimated size of affected area, nature of effect, corrective measures that have been taken or planned, and a schedule of these activities, and persons/agencies notified.

15. The Board will review this Order periodically and may revise the requirements when necessary.

16. Board Order No. 89-018 is hereby rescinded.

I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on September 18, 1991.

STEVEN R. RITCHIE
EXECUTIVE OFFICER

Attachments: Figures 1 and 2
Tables 1 and 2
Groundwater Self-Monitoring Program

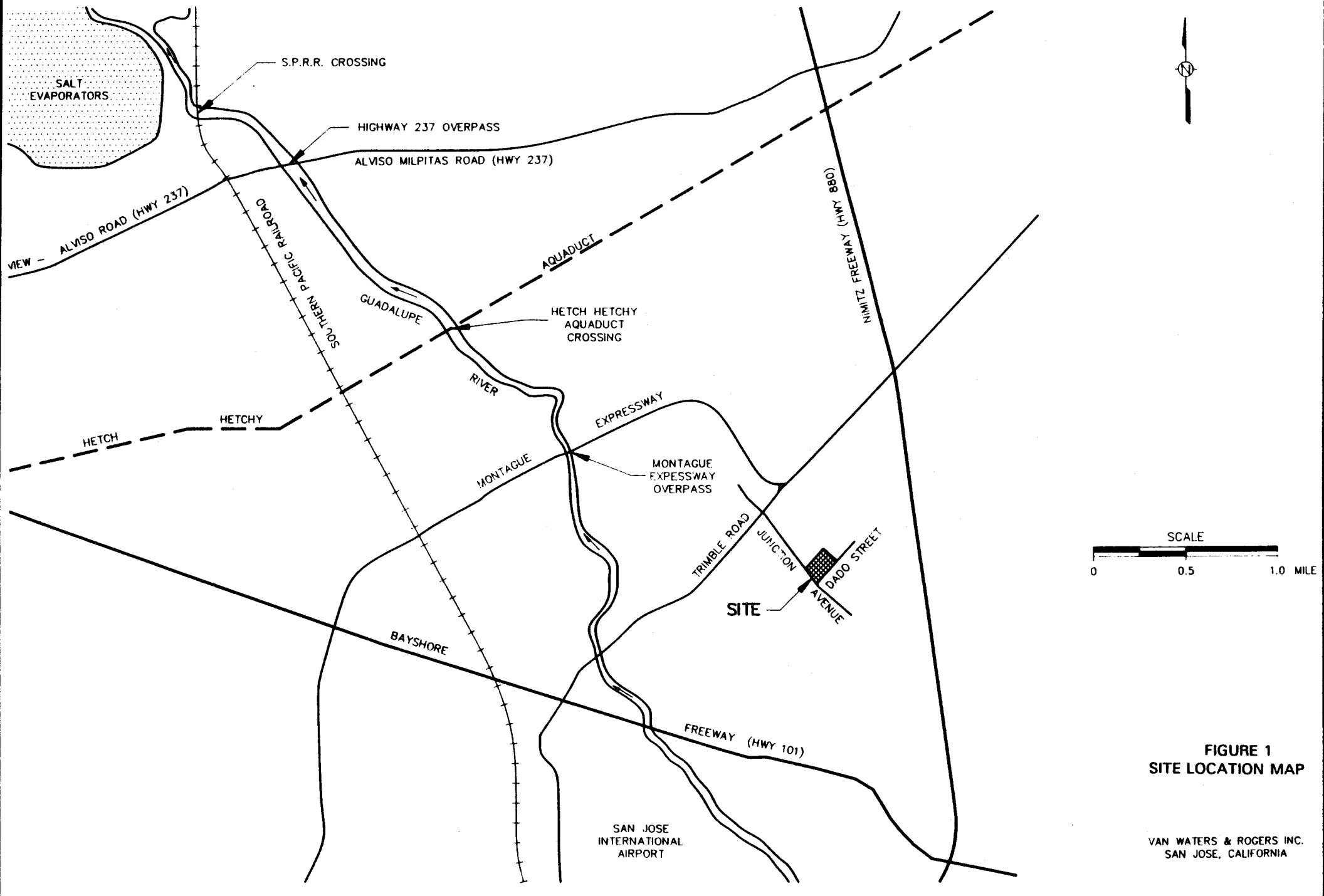


FIGURE 1
SITE LOCATION MAP

VAN WATERS & ROGERS INC.
SAN JOSE, CALIFORNIA

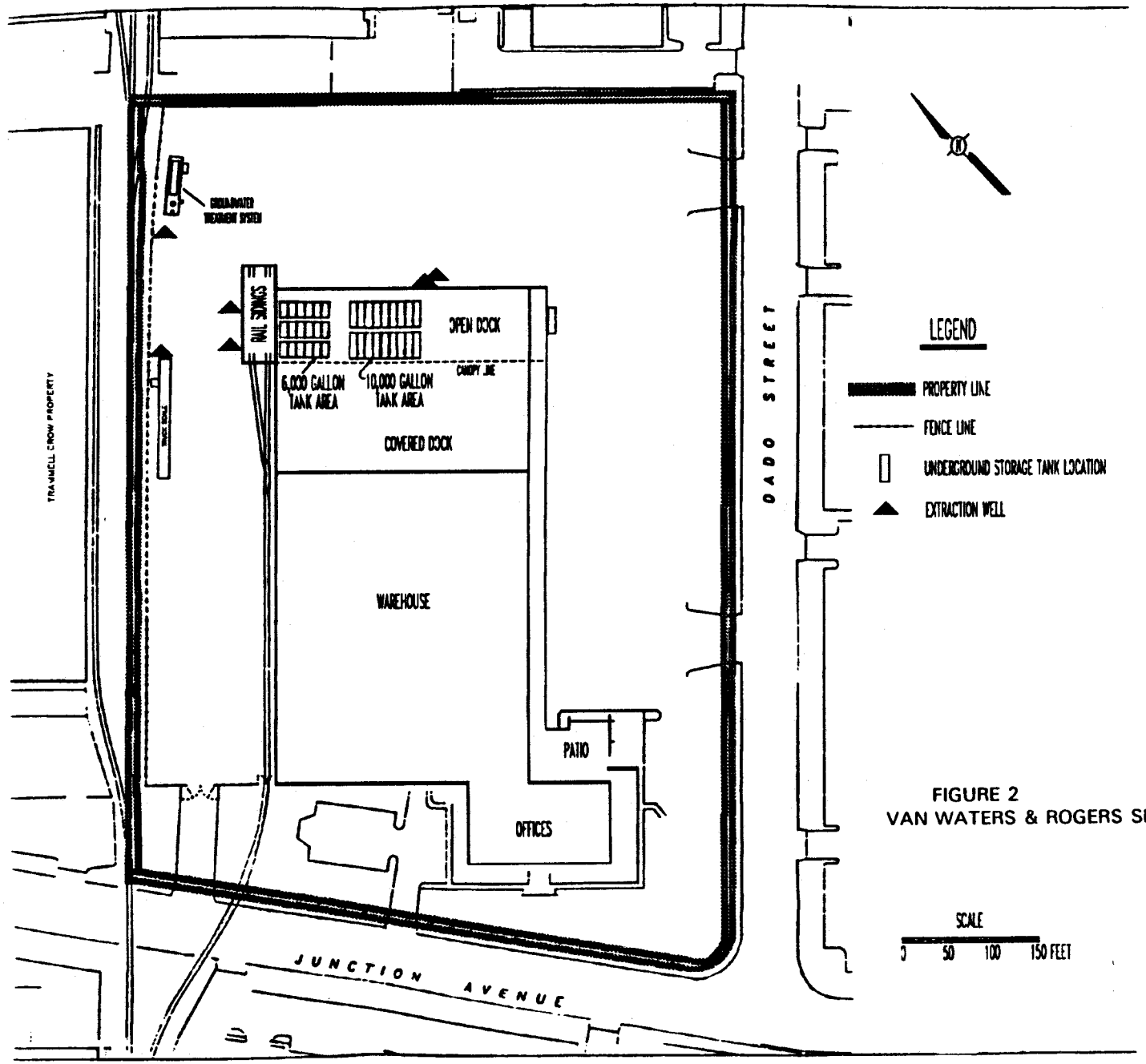


FIGURE 2
VAN WATERS & ROGERS SITE

TABLE 1

Primary and Secondary Compounds Detected in Soil and Groundwater

VAN WATERS & ROGERS INC.
San Jose, California

	PRIMARY ORGANIC COMPOUNDS	SECONDARY ORGANIC COMPOUNDS
HALOGENATED VOLATILES	1,1,1-trichloroethane 1,1-dichloroethane Freon 113 1,1,-dichloroethylene cis,trans-1,2-dichloroethylene methylene chloride tetrachloroethylene trichloroethylene vinyl chloride chloroform	bromo-dichloromethane chloroethane 1,2-dichloroethane trans-1,3-dichloropropene ethylene dibromide 1,1,2,2-tetrachloroethane 1,1,2-trichloroethane
AROMATIC VOLATILES	benzene ethyl benzene 1,2-dichlorobenzene toluene xylenes	chlorobenzene styrene
OTHER ORGANICS	ethylene glycol propylene glycol acetone methyl ethyl ketone methyl isobutyl ketone	1-butanol 2-butanol ethanol isopropanol methanol 1-propanol 1-pentanol 2-methyl-2-propanol 3-methyl-1-butonal carbon disulfide

TABLE 2
Cleanup Standards for the Chemicals of Concern and Indicator Chemicals In Groundwater
(concentrations in micrograms per liter)

VAN WATERS & ROGERS INC.
San Jose, California

Compound	FEDERAL MCLG[a]	FEDERAL MCL[b]	CALIFORNIA MCL	TARGET CLEAN UP LEVEL
acetone[f]	NA	NA	NA	4200[g]
methylene chloride[d]	(0)	(5)	NA	
tetrachloroethylene[d]	0	5	5	
trichloroethylene[d]	0	5	5	
1,1-dichloroethylene[e]	7	7	6	
cis-1,2-dichloroethylene[f]	70	70	6	
vinyl chloride[c]	0	2	.5	
1,1,1-trichloroethane[f]	200	200	200	

(a) MCLG = maximum contaminant level goal. Concentrations in micrograms per liter
(b) MCL = maximum contaminant level. Concentrations in micrograms per liter
(c) Human Carcinogen
(d) Potential or probable human carcinogen
(e) Possible human carcinogen
(f) Non-carcinogen
(g) no ARAR exists for acetone, therefore, the target cleanup level is calculated using risk-based approach
NA Not Available
( ) Criteria in parentheses are proposed standards
Shaded numbers are Final Cleanup Standards

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

GROUNDWATER SELF-MONITORING PROGRAM

FOR

VAN WATERS & ROGERS INC.

2256 Junction Avenue Facility
San Jose, Santa Clara County

ORDER NO. 91-138

Adopted on September 18, 1991

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

VAN WATERS & ROGERS INC
San Jose

GROUNDWATER SELF-MONITORING PROGRAM

A. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13268, 13383 and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16.

The principal purposes of a monitoring program by a waste discharger, also referred to as self-monitoring program, are: (1) to document compliance with waste discharge requirements and prohibitions established by this Regional Board, (2) to facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of effluent or other limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and (4) to prepare water and waste water quality inventories.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to the EPA Method 8000 series in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," dated November 1986; or other methods approved and specified by the Executive Officer of this Regional Board.

C. REPORTS TO BE FILED WITH THE REGIONAL BOARD

1. Violations of Requirements

In the event the discharger is unable to comply with the conditions of the site cleanup requirements and prohibitions due to:

a. Maintenance work, power failures, or breakdown of waste treatment equipment, or

b. accidents caused by human error or negligence, or

c. other causes, such as acts of nature, or

d. poor operation or inadequate system design,

the discharger shall notify the Regional Board office by telephone as soon as he or his agents have knowledge of the incident and confirm this notification in writing within 5 working days of the telephone notification. The written report shall include time, date, and person notified of the incident. The report shall include pertinent information explaining reasons for the noncompliance and shall indicate what steps were taken to prevent the problem from recurring.

2. The discharger shall file a written technical report to be received at least 30 days prior to advertising for bid (or 60 days prior to construction) on any construction project which would cause or aggravate the discharge of waste in violation of requirements; said report shall describe the nature, cost, and scheduling of all action necessary to preclude such discharge.

3. Self-Monitoring Reports

Written reports shall be filed regularly for each calendar quarter (unless specified otherwise) and filed no later than the fifteenth day of the following quarter. The next quarterly report is due January 31, 1992. The reports shall be comprised of the following:

a. Letter of Transmittal:

A letter from the discharger transmitting self-monitoring reports should accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period and actions taken or planned for correcting any requirement violations. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to this correspondence will be satisfactory. Monitoring reports and the letter transmitting reports shall be signed by a principal executive officer or a duly authorized representative of that person.

The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true and correct.

b. Results of Analyses and Observations

(1) Results from each required analysis and observation shall be submitted in the quarterly self-monitoring regular reports. Results shall also be submitted for any additional

analyses performed by the dischargers at the specific request of the Board. Quarterly water level data shall also be submitted in the quarterly report.

(2) The quarterly reports shall include the groundwater extraction rates from each extraction well, water level data from the extraction wells, the results of any aquifer tests conducted during the quarter.

(3) The quarterly reports shall include a discussion of unexpected operational changes which could affect performance of the extraction system, such as flow fluctuations, maintenance shutdown, etc.

(4) The quarterly report shall also identify the analytical procedures used for analyses either directly in the report or by reference to a standard plan accepted by the Executive Officer. Any special methods shall be identified and should have prior approval of the Board's Executive Officer.

(5) The discharger shall describe in the quarterly Self-Monitoring Report (SMR) the reasons for significant increases in a pollutant concentration at a well. The description shall include:

a) the source of the increase,

b) how the discharger determined or will investigate the source of the increase, and

c) what source removal measures have been completed or will be proposed.

(6) Original lab results shall be retained and shall be made available for inspection for six years after origination or until after all continuing or impending legal or administrative actions are resolved.

(7) A map or maps shall accompany the quarterly report, showing all sampling locations and plume contours to final cleanup levels.

(8) The discharger shall describe in the quarterly monitoring report the effectiveness of the actions taken to regain

compliance if compliance is not achieved. The effectiveness evaluation shall include the basis of determining the effectiveness, water surface elevations and water quality data.

(9) The annual report shall be combined with the fourth quarter regular report and shall include cumulative data for the current year. The annual report for December shall also include minimum, maximum, median, and average water quality data for the year, a summary of water level data, and GC/MS results. The report shall contain both tabular and graphical summaries of historical monitoring data.

d. SMP Revisions:

Additional long term or temporary changes in the sample collection frequency and routine chemical analysis may become warranted as monitoring needs change. These changes shall be based on the following criteria and shall be proposed in a quarterly SMR. The changes shall be implemented no earlier than 45 days after the self-monitoring report is submitted for review unless approved in writing.

Criteria for SMP revision:

(1) Discontinued analysis for a routine chemical parameter for a specific well after a two-year period of below detection limit values for that parameter.

(2) Changes in sampling frequency for a specific well after a two-year period of below detection limit values for all chemical parameters from that well.

(3) Temporary increases in sampling frequency or changes in requested chemical parameters for a well or group of wells because of a change in
data needs (e.g., evaluating groundwater extraction effectiveness or other remediation strategies).

(4) Add routine analysis for a chemical parameter if the parameter appears as an additional chromatographic peak in three consecutive samples from a particular well.

(5) Alter sampling frequency based on evaluation of collective data base.

D. DESCRIPTION OF SAMPLING STATIONS

All existing and future shallow, intermediate and deep aquifer monitoring and extraction wells as appropriate. See Table I and Figure I (attached) for monitoring and extraction wells installed at the time of the adoption of this SMP.

E. SCHEDULE OF SAMPLING AND ANALYSES

1. The schedule of sampling and analysis shall be that given in Table I (attached).

2. In addition, if a previously undetected compound or peak is detected in a sample from a well, a second sample shall be taken within a week after the results from the first sample are available. All chromatographic peaks detected in two consecutive samples shall be identified and quantified in the quarterly report.

3. Groundwater elevations shall be obtained on a quarterly basis from all wells at the site and submitted in the quarterly report with the sampling results.

4. Well depths shall be determined on an annual basis and compared to the depth of the well as constructed. If greater than ninety percent of screen is covered, the discharger shall clear the screen by the next sampling.

I, Steven R. Ritchie, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with site cleanup requirements established in Regional Board Order No. 91-138.

2. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger, and revisions will be ordered by the Executive Officer or Regional Board.

3. Was adopted by the Board on September 18, 1991.

9/18/91
Date

Steven R. Ritchie
Executive Officer

Attachments: Table I - Sampling Schedule
Figure I - Well Location Map

TABLE I

SCHEDULE FOR GROUNDWATER SAMPLING AND ANALYSIS
VAN WATERS & ROGERS INC.

WELL NO.	SAMPLING FREQUENCY*	FIRST QUARTER	SECOND QUARTER	THIRD QUARTER	FOURTH QUARTER
1	S	--	8240	--	8010/8020
2	S	--	8010	--	8010/8020
3	S	--	8240	--	8010/8020
4	A	--	A[a]	--	--
5	A	--	A[a]	--	--
6	Q	8010/8020/DAI[b]	8010/8020/DAI	8010/8020/DAI	8010/8020/DAI
7	Q	8010/8020	8240	8010/8020	8010
8	A	--	A[a]	--	--
9	S	--	8240	--	8010/8020
10	S	--	8010	--	8010/8020
11	Q	8010	8010	8010	8010
12	S	--	8240	--	8010
13	S	--	8010/8020	--	--
14	Q	8010/8020	8010/8020	8010/8020	8010/8020
15	Q	8010/8020	8240	8010/8020	8010/8020
16	Q	8010/8020/DAI	8010/8020/DAI	8010/8020/DAI	8010/8020/DAI
17	Q	8010	8010	8010	8010
20	Q	8010/8020	8240	8010/8020	8010
21	Q	8010	8240	8010	8010
24	Q	8010	8010	8010	8010
25	Q	8010	8010	8010	8010
26	Q	8010/8020	8240	8010/8020	8010
27	Q	8010	--	8010	--
28	Q	8010/8020	8240	8010/8020	8010/8020
29	Q	8010/8020	8010/8020	8010/8020	8010/8020
30	Q	8010	8010	8010	8010
31	Q	8010/8020	8010	8010/8020	8010
32	S	--	8240	--	8010
33	S	--	8240	--	8010

34	S	--	8240	--	8010
35	S	--	8240	--	8010
36	S	--	8240	--	8010/8020
37	S	--	8240	--	8010/8020
38	S	--	8240	--	8010/8020
39	Q	8010/8020	8010	8010/8020	8010
40	Q	8010/8020	8240	8010/8020	8010
41	Q	8010/8020	8240	8010/8020	8010/8020
42	Q	8010/8020	8010/8020	8010/8020	8010/8020
44	Q	8010/8020	8010/8020	8010/8020	8010/8020
new wells	Q	8010/8020	8240	8010/8020	8010/8020

(a) The required annual analysis using EPA Method #8240 shall be performed in alternate years with the required analyses using EPA Method #s 8010/8020

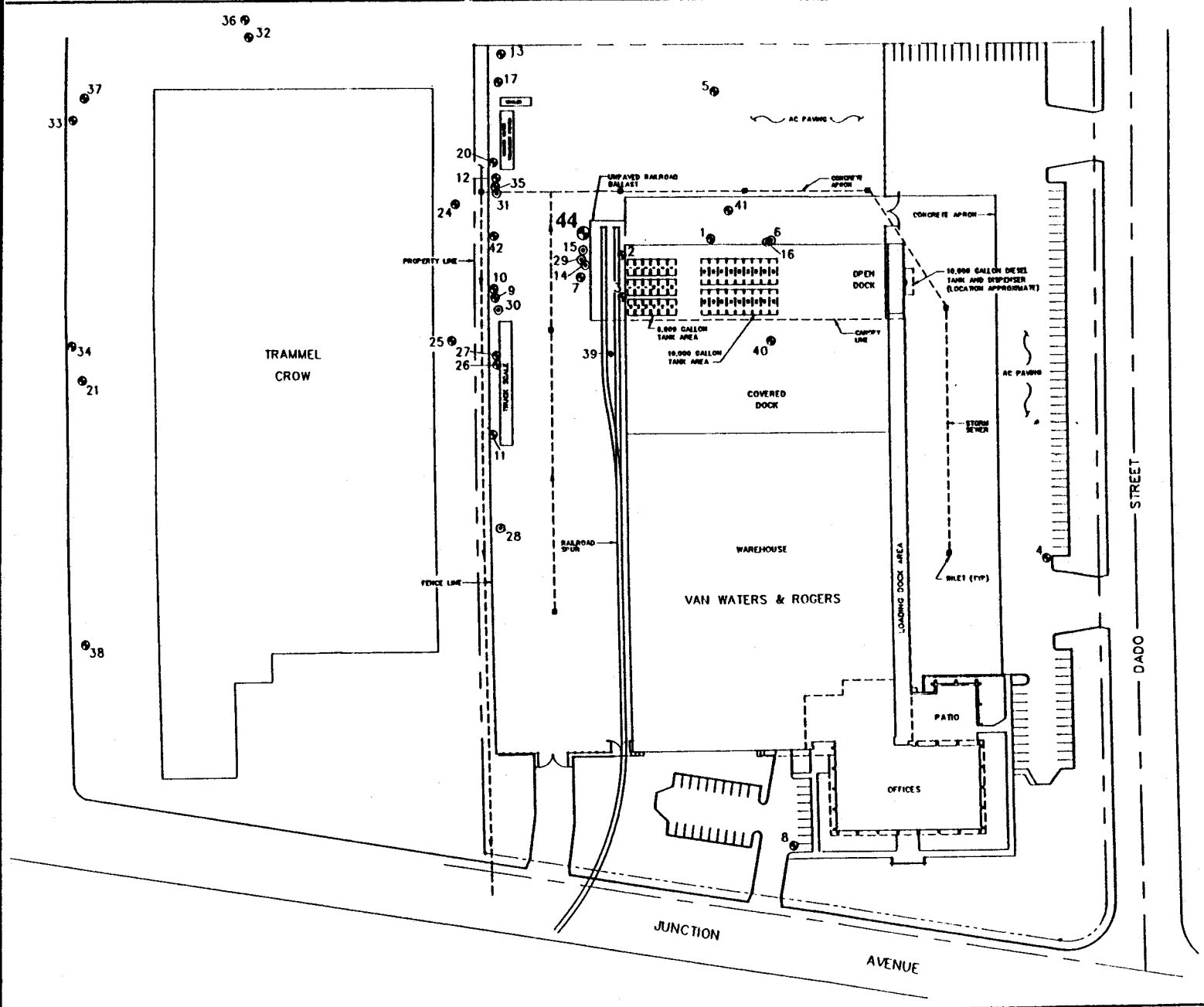
(b) DAI = Direct Aqueous Injection

* water levels shall be measured and reported for each well every Quarter; pH and specific conductivity shall be measured and reported for each well at each sampling event

Q Quarterly sampling, once in February, May, August, and November

S Semi-annual sampling, once in May and once in November

A Sampling once per year, either in May or November



EXPLANATION

- 44 ⊕ MONITORING WELL LOCATION
- 16 ⊕ EXTRACTION WELL LOCATION
- UNDERGROUND STORAGE TANK
- LANDSCAPED AREA
- PROPERTY LINE

FIGURE 1
WELL LOCATION MAP

0 120 240
SCALE IN FEET

CAD File Name: WELL_LOC Last Plot

Well Location Map
Van Waters & Rogers, Inc.
San Jose, California

DATE
5/91